

**REMARKS**

Applicants herein respond to the issues raised in most recent Office action, as well as amend certain of the pending claims and drawings. As an initial matter, Applicants appreciate the Examiner's acknowledgement of the patentable nature of the inventive subject matter of claims 22-28, 30-38, 43, 44, 46, and 47.

Turning first to the claim amendments, per the Examiner's helpful suggestion Applicants have altered the numbering of previously presented claims 32-54 to reflect that they are, in fact, claims 31-53. Corresponding changes in claim dependence have also been made, where necessary. Applicants have also added the term "dense" before "reactive layer" in each of dependent claims 22, 25, 29, 30, and 34-36. In claim 36, Applicants have added "material that comprises". In claims 40 and 50, "in capacitance" has been deleted. In claim 41, "is" replaces "comprising a sensing circuit", and in claim 50, "hydrogen" replaces "the chemical". Each of these amendments is made simply to employ consistent, and preferred, terminology, not for reasons related to patentability. Moreover, none of these amendments adds new matter. In any event, Applicants reserve the right to pursue subject matter not yet or no longer claimed in this application in this or one or more related applications.

As for Figures 1-4, 6, and 7, they have been amended as suggested in the Office action. Replacement pages that include the amended figures are include in attached Exhibit A.

Applicants respectfully request reconsideration in view of the following remarks.

**Drawings**

Applicants appreciate the Examiner's review of the drawings. Amended drawings, modified as suggested in the Office action, are part of this response, and Applicants respectfully request that the drawings, as amended, be accepted.

**Specification**

Applicants request that the objections to the specification noted in the Office action be held in abeyance until such time as a notice of allowable subject matter issues. At that time,

Applicants will review the specification and correct errors, including those noted in the Office action.

35 U.S.C. §112, Second Paragraph

Certain of the claims stand rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite due to the use of the term “dense” in the context of “dense reactive layer”. Applicants respectfully traverse, and direct the Examiner’s attention to paragraph 38 of the specification, which provides:

[38] It has been further discovered that thin metal films comprised of palladium (or its alloys) exhibit varying degrees of relaxation depending on the conditions used to deposit or apply the reactive layer. In particular, it has been discovered that enhanced ion bombardment and/or elevated substrate (here, a structure such as a microcantilever beam) temperature during the film application or deposition process can substantially reduce or eliminate relaxation. Without wishing to be bound to a particular theory, it is likely that these methods work by densifying the thin film. Thus, as used herein, a “dense” thin film is one that experiences less, and even no, relaxation as compared to a thin film of like initial chemical composition (i.e., as determined just prior to initiating the application or deposition process) but which has been applied to the same type of substrate using a different process, i.e., one that does not involve enhanced ion bombardment and/or elevated substrate temperature. Id. (emphasis added).

Contrary to statements in the Action, the above passage clearly defines what Applicants mean by “dense” in the context of the invention as claimed, i.e., that any “dense” reactive layer is one that exhibits less, or no, relaxation as compared to a layer of like chemical composition applied to the same type of substrate using a different process. Given this, those skilled in the art would indeed understand the scope of the invention, as claimed. Accordingly, Applicants respectfully submit that any of their claims containing this term satisfy the requirements of 35 U.S.C. §112, second paragraph.

With regard to the 35 U.S.C. §112, second paragraph, rejection of claim 41 (previously claim 42), Applicants respectfully submit that the amendments above obviate this basis rejection, thereby necessitating its withdrawal.

35 U.S.C. §103

Certain claims have been rejected under 35 U.S.C. §103 as being unpatentable in view of either of U.S. patent numbers 5,445,008 or 5,918,263. Applicants respectfully traverse. Put simply, neither the '008 patent nor the '263 patent teach or suggest the use of a chemical sensor that includes a dense reactive layer, i.e., a reactive layer that experiences less, or even no, relaxation as compared to a reactive layer of like initial chemical composition applied to the same type of substrate using a different, non-densifying process. For this reason, neither of the cited patents, alone or in combination, renders obvious any of the pending claims, and Applicants thus have no need to address the characterization of these patents in the Office action, other than to note that they do not acquiesce to any of the characterizations set forth in the Office action, and they reserve their right to address any or all of them in the future, if necessary. Because the claimed invention is indeed patentable in view of the '008 and '263 patents, Applicants respectfully request that the 35 U.S.C. §103 rejections be withdrawn.

Conclusion

Applicants respectfully submit that all of the pending claims are in condition for allowance, and they earnestly solicit an early notice to such affect. Should any issues or questions exist, the Examiner is encouraged to telephone the undersigned at 858.350.9690 so that they may be promptly resolved.

Respectfully submitted,

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## EXHIBIT A

Amended Replacement Drawings